

ScholarSpace and Scholarly Communication: A Needs Assessment

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Spring, 2009

STATEMENT OF PROBLEM

Background

In the last few years there has been a marked increase in the number of educational and cultural institutions worldwide which are in the process of developing institutional repositories. An institutional repository (IR) can be defined as a “digital collection capturing and preserving the intellectual output of a single or multi-university community” (Crow, 2002). The digital collection is housed in a database system to which submitters can add files. Very typically the IR will contain pre- and post-prints of scholarly articles, dissertations, theses, technical reports, and conference proceedings.

This movement is motivated by the desire to manage the content of digital curation activities. Content management allows control over the submission, archiving, publishing, access and preservation of scholarly publications and research output. The increased move towards institutional repository development is the result not only of advances in technology and the availability of good open source software but is also motivated by a more recent movement called the “Open Access movement”, which represents a shift away from traditional approaches to scholarly communication. Both the rising costs of serials and the desire and opportunity to provide access to publications and research quickly to a large audience via the Internet have dramatically influenced the development of institutional repositories worldwide. “IRs provide an institution with a mechanism to showcase its scholarly output, centralize and introduce efficiencies to the

stewardship of digital documents of value, and respond proactively to the escalating crisis in scholarly communication” (Gibbons, 2004). “More importantly, well-established IRs allow authors and users to meet in the early phases of conception of academic ideas, encouraging both parties to share information freely and openly” (Kim & Kim, 2008).

In addition, momentum is building for institutions to provide repositories from increased government pressure. In December, 2007, former President Bush signed a spending bill, the National Institutes of Health’s Public Access Law, requiring the National Institutes of Health (NIH) to mandate open access to all of the research that it funds. “The Director of the National Institutes of Health shall require that all investigators funded by the NIH submit or have submitted for them to the National Library of Medicine’s PubMed Central an electronic version of their final, peer-reviewed manuscripts upon acceptance for publication, to be made publicly available no later than 12 months after the official date of publication” (NIH, 2008). The NIH is the world’s largest funder of scientific research, with a 2009 budget of \$29 billion. “NIH-funded research results in 80,000 peer-reviewed articles per year” (Suber, 2008). Some universities are mandating that such research be deposited in their own repositories as well. “In a historic measure, the Harvard University Faculty of Arts and Sciences (FAS) in February unanimously approved a motion that compels Harvard researchers to deposit their “scholarly articles” in an open access (OA) repository to be managed within the library and to be made freely available to anyone via the Internet” (University of Iowa Libraries, 2008). With an increase in the awareness of the Open Access movement and a shift in the landscape for scholarly communication, repository development will experience a growth as more and more institutions follow the path of the Harvard faculty.

Worldwide repository development is increasing steadily, particularly in Australia, New Zealand, India, and Europe. “In recognition of the importance and value of institutional repositories with a UK institutional repository network, the Joint Information Systems Committee (JISC) recently made substantial funds available to establish a support infrastructure to assist all higher education institutions in England and Wales to establish their own institutional digital repositories” (Pennock & Lewis, 2007). Around the globe, national, intergovernmental, and non-profit funding agencies are realizing the increased need for governmental policies requiring public access to research funded by government agencies. Institutional repositories very often act as a place to deposit such research in order to make it freely available on the Internet. In the United Kingdom, The Wellcome Trust, funds research to improve human and animal health and is the largest private funder for this research. It has required open access to all publications resulting from Wellcome Trust grants since 2005. As of September 2007, “six of the seven Research Councils in the UK have adopted open access mandates” (MIT Libraries, 2008). This Open Access movement is taking place across Europe. The European Commission allocated 50 million pounds for the 2007-2008 period in support of the open access infrastructure. In addition, numerous research funding organizations across Europe have established Open Access mandates. Finally, Canada, too, has announced new Open Access policies that took effect in January, 2008. The Canadian Institutes of Health Research (CIHR) now require that “those receiving grant funds from CIHR ‘make every effort to ensure’ their research articles are made freely available within six months of publication” (MIT Libraries, 2008).

Problem Statement

Though there is a dramatic increase in the development of institutional repositories, it is therefore a curious phenomenon that developers of these institutional repositories often struggle with populating the repositories with content.

Research strongly suggests that IR development should include a complete needs assessment of the target users of the repository. "... accommodating faculty needs and perceptions – and demonstrating the relevance of an institutional repository in achieving them – must be central to content policies, implementation plans, and internal marketing" (Crow, 2002). Therefore the purpose of this needs assessment was to understand how best an institutional repository can meet the research needs of faculty and researchers at the University of Hawaii at Manoa (UHM).

REVIEW OF LITERATURE

Benefits of an Institutional Repository

There are potentially numerous benefits that would draw faculty and researchers to deposit work into their institution's repository. Capturing the intellectual capital of their institution, better service to contributors and to the learning community, exposing the institution's intellectual output to researchers around the world, increasing the research library's role as a partner in the research enterprise, and contributing to the longtime preservation of digital output were some of the benefits outlined by a 2007 census of institutional repositories (Mareky, et.al).

Chan and Crow (2002, 2004) found that one appeal to researchers was the knowledge that there would be a paradigm shift in scholarly publishing. Publishing

within an institution's own repository would wrest the control from publishers and put it back in the hands of the academy. They also listed the idea that there would be increased visibility, prestige, and public value. These authors reported that, overall, scholars saw the benefit in increasing the numbers and diversity of scholarly materials that would be collected and preserved within an institutional repository.

Furthermore the use of persistent identifiers for research is a very positive development with the repository system. Persistent identifiers provide unique identification which can help to reduce confusion over multiple versions of a resource. They can also help to improve the ease of locating resources that are often widely distributed, thereby facilitating the re-use of resources for new research. In addition, it is becoming evident that as research is disseminated in this open-access online environment citation counts are increased. Eysenbach concludes a 2005 study with the observation that "the 'open access advantage' has at least three components: (1) a citation count advantage (as a metric for knowledge uptake within the scientific community), (2) an end user uptake advantage, and (3) a cross-discipline fertilization advantage". Both the persistent identifier feature and the "open access advantage" enhance the appeal of repository use.

Content Recruitment

The very success of a repository is often measured by the amount of content held within the repository. In a 2003 article, Shearer suggests that the success of IRs will be determined eventually by "their uptake and use by researchers." The author states that one of the measures for the usefulness of IRs is contribution of content. Proberts and Jenkins concur, "Content size is one of the most important factors for assessing the

achievement of self-archiving” (2006). Blythe and Chachra also state “IRs will be successful only if a large percentage of the institutional community voluntarily subscribes to the concept of the repository and routinely participates in it” (2005).

Foster, in a 2005 article addressing IR development at the University of Rochester, refers to a 2004 study in which 45 repository developers were surveyed. Foster reports that the total average number of documents held within individual repositories to be only 1,250 items per repository, a small number when considering the amount of dollars and staff hours that go into establishing and maintaining a repository (2005). Bailey et. al., researching for an Association of Research Libraries publication, sums up the response of about two-thirds (63%) of ARL libraries regarding the recruitment of digital content for the IR as “difficult” (2006).

A number of studies have addressed the problem of content recruitment for repositories. The IR developers at the University of Rochester River Campus Libraries discuss a study conducted in 2003 that explored the seeming misalignment between the needs and expectations of faculty and researchers with what the IR could provide in terms of benefits and services. Their earlier research had shown them that, despite the rapid rate of IR development at various institutions, the deposition of content had remained very modest. In their attempt to address this issue, the authors conducted a very in-depth work-practice study of how faculty members conduct their research and writing. Their key finding was that “what faculty members and university researchers want is to do their research, read and write about it, share it with others, and keep up in their fields” (Foster & Gibbons, 2005). The authors outlined a number of ways to recruit content that would help to support of their faculty’s needs, that were “faculty-centric.” They also took a hard

look at the repository system itself and planned to further analyze how the repository system matches the needs of researchers at their institution.

The MIRACLE project sponsored by the Institute of Museum and Library Services conducted a study investigating the development of repositories in order to discover elements for success and to determine effective ways of contributing to and accessing repositories. They, too, found that content recruitment proved to be a challenge (Markey, et. al., 2007).

Other studies have focused on this problem with researchers trying to determine the cause for under recruitment of content. “The prime reasons for this could be - confusion, uncertainty and fear on copyright issues; doubts regarding how the material would be used; doubts on getting proper attribution, impact and scholarly credit; myth of low quality material in institutional repositories; unfriendly submission procedures; lack of mandatory provisions to deposit and lack of Internet connectivity” (Singh, et. al., 2008).

vanWestrienen and Lynch conducted an international study, gathering information for a 2005 Coalition for Networked Information conference. They wanted to capture a picture of the current state of deployment of IRs in the academic sector. They also wanted to explore how national policies were shaping the development of IRs within each of the 13 countries surveyed. One focus of the survey was to determine factors that inhibited the deployment of IRs. They found that many of the factors “revolved around resource constraints and the difficulties of informing faculty about the value of institutional repositories and convincing faculty to contribute” (vanWestrienen & Lynch, 2005). They summarized, “It is clear that there is confusion, uncertainty and fear about intellectual property issues (not just getting copyright permissions to deposit, but questions about

who will use material that has been deposited, how it will be used, and whether it will be appropriately attributed), about impact factors and scholarly credit, and related matters” (vanWestrienen & Lynch, 2005).

As in the Foster article and the vanWestrienen and Lynch study, advice for successful deployment of IRs is usually given in the concluding remarks of many studies. Pelizzari voices concern, “The biggest obstacle may be inertia ... amongst academics ... [the problems of] intellectual property rights, quality control, workload (their own), undermining the ‘tried and tested’ publishing status quo on which academic reputations and promotions lie” (Pelizzari, 2005). Giervel summarizes, “the marketing challenge of the IR [is] somewhat controversial: Scientists need to act in order to make the IR ‘product’ successful, yet it is a product which they did not ask for in the first place” (Gierveld. H., 2006).

A planned needs assessment at the University of Hawai’i at Manoa will address these issues and will provide guidance in the development of the institutional repository at that institution.

Needs Analysis

“Change in scholarly communication has been under way long enough that it is clear it will not achieve its full potential without active involvement of scholars and researchers, and research institutions are the obvious places to begin a much deeper level of exploration of and dialogue about the evolving spectrum of issues” (Hahn, 2008).

Though data from early studies on institutional repositories indicates a variety of reasons why there has been some reluctance on the part of faculty and researchers to deposit their scholarly output in their institution’s repository, most institutions are

moving ahead with repository development. Repository developers realize the many benefits in developing repositories at their institutions, but they must further ascertain the best approach in assuring the process of voluntary and habitual submission of items into the repository to achieve success. However, in order to develop a repository that fits the needs of faculty to support their research, it is becoming apparent that one of the steps in the early development of a repository will be to analyze the needs of the target audience at a particular institution. “Institutional repositories will succeed precisely because they are responsive to the needs of campus communities, and advance the interests of campus communities and of scholarship broadly” (Lynch, 2003). In the Gierveld article, the author discusses using a marketing and communications approach for an institutional repository. IR developers are encouraged to thoroughly think about the target audience for the IR and advises that “their benefits should be the starting point for developing the product in order to make them deposit their work” (Gierveld, 2006).

A needs assessment conducted for the University of Hawaii at Manoa community will help to give definition to the needs of our researchers and faculty members. It will thereby guide the development of the institutional repository, in terms of both services and products. As the vanWestrienen and Lynch article advises, “It will be very important to gain a better ongoing understanding of the extent to which institutional repositories are necessary to support developments related to e-science and e-research, or indeed for a wide variety of other purposes beyond managing and providing access to relatively traditional faculty publications, and how actively they are being used for these purposes” (vanWestrienen & Lynch, 2005). Finally hope is given for the successful development of an IR through the words of Foster and Gibbons when they advise that “if properly

aligned with the existing practices of faculty, IRs have the potential to fulfill many of their so far unmet expectations” (2005).

Summary

The benefits of depositing work into an institution’s repository are numerous. Not only does the learning community benefit and the prestige of the institution increase, but there is an increase in citation rate for faculty and researchers who deposit their work into a repository. Added benefits are persistent identifiers, the preservation of work in a central location, and an open access advantage for the distribution of scholarly work. Despite the obvious benefits, many institutions have found it difficult to recruit the content needed to make their institutional repository a success. Numerous studies cite many potential reasons for this reluctance by faculty and researchers to easily contribute their work to a repository: possible confusion or fear on copyright issues, quality control, doubts about proper attribution and scholarly credit, lack of mandatory provisions to deposit, workload, and limited technology. In order to develop a repository, this needs assessment provides specific information to assist in aligning UH Manoa faculty needs with the services provided by the repository. It helps to ascertain the best approach in assuring the process of voluntary submission of items and the success of the repository.

METHODOLOGY

This study was conducted to investigate how an institutional repository can best meet the research needs of faculty and researchers at the University of Hawaii at Manoa. Findings gathered from a needs assessment will determine ways to ensure optimal content recruitment of scholarly work from the University faculty and researchers. This may, in part, influence the development of system features. It may, as well, determine the

following aspects of the IR project development: the services offered to faculty and researchers, the approaches in marketing the system, and the manner in which to train potential users.

Instrument

Assessment data was gathered through a formal questionnaire in an online format. Questions included several demographic questions to determine status at the University and comfort level with adopting new technologies. Most questions gathered information about needs for storing and sharing research, attitudes on open access publishing, and on how the UHM Library might assist in scholarly work.

The survey instrument was adapted from previously-tested questionnaires used in similar IR studies at other academic institutions in the United States. The software that was used to generate and implement the online questionnaire is Surveyor, a web-based survey application.

The survey application contains a report module. This feature supports data collection, organization, and preparation in various report formats. However, in order to generate more granular reports and charts and to more finely manipulate the data, it must be further exported into an external spreadsheet program.

The format of the survey allowed for both the selection of pre-determined answers as well as an area to explain the selection of an answer and gather further comments. In this manner both quantitative and qualitative data was gathered through the same instrument.

Sample

The most recent statistics available indicate that there are 1,180 full-time faculty at the University of Hawaii (UH) at Manoa campus, with an additional 92 part-time faculty

members. Of the 20,357 total student population, graduate and professional students number 6,320. The population is diverse in its multiethnic heritage. Two of the major University schools rank either first or top in the nation for the best environment for minority students and the most diverse faculty.

The institution, with very high research activity, excels in a number of academic areas. It is a leader in Hawaiian, Pacific, and Asian studies, as well as in astronomy, oceanography, international business, and travel industry management. UH Manoa is ranked in the top 30 public universities in federal research funding for engineering and science by the National Science Foundation, and it is one of only 13 institutions in the nation to hold the unique distinction of being a Land, Sea, and Space Grant research institution. The Cooperative Extension Service, provided by the College of Tropical Agriculture and Human Resources, dedicates approximately 65 county agents and specialists performing extension work in agriculture, natural resources, and human resources across the state of Hawaii. The Hawaii Institute of Marine Biology runs the world's only coral reef research center and marine biology lab built on a coral reef. The Institute for Astronomy is involved in major next-generation telescope projects and within four years, the Hawaii Space Flight Program will make UH Manoa the first university in the world to be able to design, build, launch, and control its own satellites. The William S. Richardson School of Law, the John A. Burns School of Medicine, and the Shidler College of Business graduate program in international business all rank high for a number of distinctions. The School of Pacific and Asian Studies hosts seven area centers, and UHM is home to the nation's only School of Hawaiian Knowledge. In 1960, the U.S. Congress established the East-West Center on UHM's campus to offer

interdisciplinary research, dialogue, and professional enrichment and educational programs to the peoples of Asia, the Pacific, and the United States. There are strong ties between the East-West Center and the UHM faculty, staff, and students. (University of Hawaii at Manoa, 2008).

The focus on research is also evident in the number of research grants awarded to UH Manoa. In the 2007 fiscal year alone, out of the 1,560 grant proposals submitted by faculty and researchers, 1,029 were awarded, bringing in \$209,909,833 in research grant money.

In order to support the high level of research activity at the UHM, the focus of this needs assessment was on its faculty, researchers and graduate students. By using faculty and graduate student listservs, organizations, and points of contact, the subject sample should more accurately represent the target group for this assessment. The actual sample population for this survey is further described in the results section of this paper.

Procedure

The questions in the initial draft for use in the survey were adapted from other IR needs assessments conducted at several universities. Institutional repository directors at the University of Southern California and at the University of Arizona Libraries provided examples of the needs assessment instruments and reports from their studies. The second draft of the survey questions resulted from tailoring the survey to more reflect the culture at the UHM. The draft was revised numerous times as it was reviewed by the Chair of the Educational Technology Program at UHM, several Library colleagues interested in scholarly communication, an IR content expert, and the University Librarian.

Field testing was conducted as a next step, using several faculty members from across campus and three graduate students. Feedback from this input was used to further refine and clarify aspects of the survey.

After the survey questions were finalized, application was submitted to the Committee on Human Studies, seeking exemption from the Department of Health and Human Services regulation requiring permission to conduct research on human subjects. Exemption was granted on October 16, 2008.

The final set of questions was formatted into an online version using the software program, *Surveyor*. This format was used to distribute the survey electronically.

Recruitment of survey participants took place through a number of avenues. A request for graduate student and faculty participation was placed on the UHM Library's website and through the UHM's website. Several UHM community listservs were used to send out participation requests, such as those representing the Graduate Student Organization and the Manoa Faculty Senate. The committee chairs for various campus meetings, such as the UHM Department Chairs Council, were contacted with a request to distribute the survey. In addition, librarians acting as library liaisons were asked to contact their department representatives.

The main participant recruitment effort focused on web-based distribution, so data was gathered electronically directly into the survey application. Simple statistical and qualitative methods were applied to analyze the data.

This data will provide meaningful feedback to enhance the functionality and services of the institutional repository for the University of Hawaii at Manoa.

RESULTS

Participants

There were 414 participants who responded to the online survey. Of that number, 89 responses were removed from the overall tally due to incomplete responses. The remaining 325 participants were almost equally divided between graduate students and faculty. Table 1 provides a breakdown of this demographic data.

Table 1. Demographic Data of Participants

Graduate Students	48.48%
Instructional Faculty	31.4%
Research Faculty	10.06%
Specialist Faculty	7.01%
Librarian Faculty	2.74%
Extension Agent Faculty	0.3%

Over 80 % of the participants indicated that they were either very comfortable or comfortable in adopting new technologies in their work. This distribution was almost equal between graduate students and faculty.

Use and Distribution of Participant Research

The participants were also asked to indicate who they envisioned using the research materials that they create. Thirty-six percent of the focus was on students, both graduate and undergraduate. In addition, approximately 44% envisioned other faculty, researchers, and practitioners, and the general community utilizing their research. One participant responded with this comment, “If materials are to be put online, it is hard to imagine who

would NOT use the resources. If anything, online access has tremendously broadened the use of materials by people young and old, from K-12 level children to senior citizens.”

Though the majority of participants responded favorably to the idea of distributing their work through an institutional repository, a significant number were unsure. Table 2 gives a breakdown of the responses.

A few comments given for this survey question also indicated confusion over the idea of an institutional repository and the need for further clarification.

Table 2. Participants Favoring Distribution of Research in an IR

Yes	59.22%
No	5.5%
Unsure, need more information	35.28%

Participants were asked what their future intent or purpose was in maintaining their digital files. Table 3 reflects the responses to this question. The responses to this question were interesting in that there was a fairly even spread describing purpose for keeping the files. By analyzing the responses, it will help the ScholarSpace team to not only focus on future development aspects of the repository but on the communication points of interest to faculty and researchers.

Table 3. Purpose in Keeping Digital Files

Provide long-term preservation of my digital material	14.92%
Support my teaching and research	13.74%
Store my digital materials in a centralized site	12.63%
Support the teaching and research of others	9.51%
Make it easy for other researchers or students to access my digital materials	9.09%
Increase the visibility of my research	8.33%
Enable re-use and re-purpose of my digital content	7.98%
Maintain and update my materials on a department website	7.36%
Support Open Access	6.38%
Increase visibility and impact of University's research	5.9%
Meet requirements for publicly-funded research initiatives	3.05%

Written comments indicated that another use was personal, for example when applying for promotion or tenure.

One question on the survey inquired into the amount of access participants currently allowed in terms of their digital files. Figure 2 displays the results from this question.

Some researchers commented that though they haven't made their research publicly available in an Open Access format, they would always send copies of their work in response to queries. A few comments indicated that some participants hadn't thought about making their work publicly available in an institutional repository.

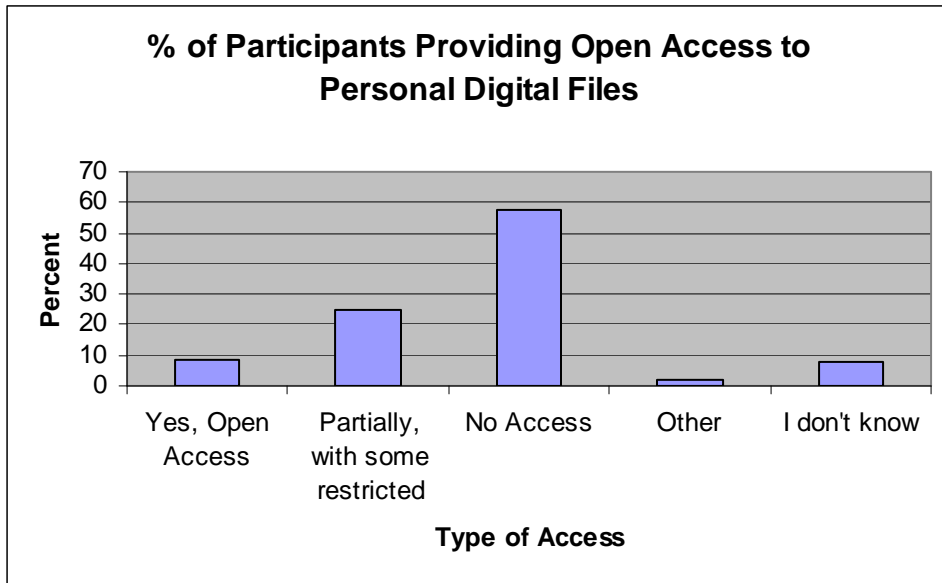


Figure 2. The percentage of participants providing open access to personal digital files.

Those participants who do allow partial or Open Access to their research materials were asked to identify the users of that material, as indicated in Figure 3.

The comments for this question indicate that many of the participants who chose “Other” in the response are those who give access to colleagues, students, or special interest groups as necessary or when information is requested.

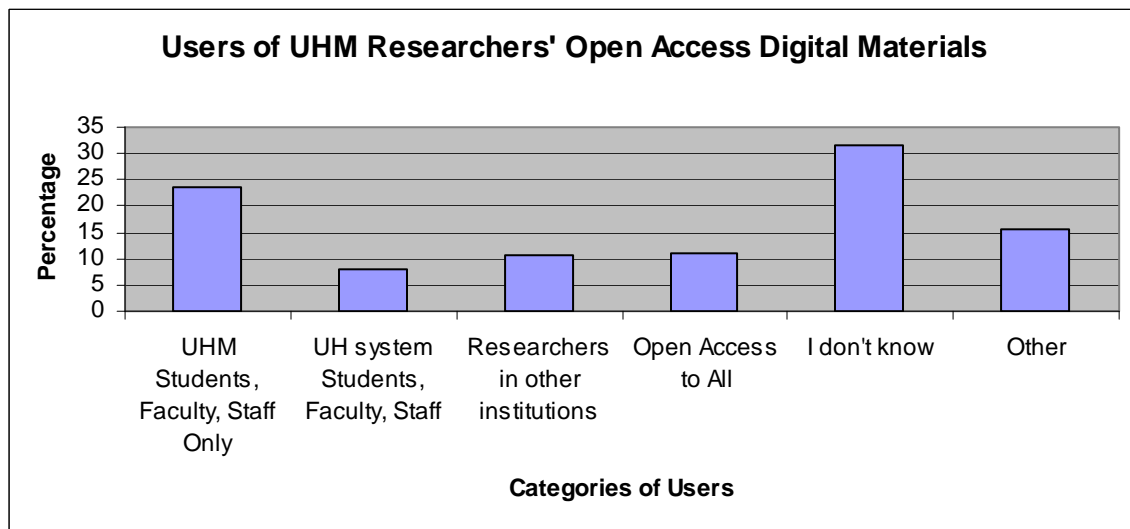


Figure 3. The users of the UHM researcher's open access digital materials.

Storage and Maintenance of Digital Files

When asked the current storage location of their digital files, approximately 63% replied that their research was being stored on their personal computer. Almost 15% use a department server and another 16% indicated they used either a private server or the Information Technology Services server at UHM. Participants commented that they made use of flash drives, external hard drives, CDs and DVDs, and services provided by Google Docs for backup as well.

Participants were also asked to estimate the amount of digital storage space was necessary for their digital files. The response is listed in Table 4.

Table 4. Amount of Needed Digital Storage Space

Less than 100MB	19.09%
From 101MB to 500MB	28.48%
From 501MB to 1 TB	23.3%
More than 1 TB	5.5%
I don't know	23.62%

Use of a Centralized Institutional Repository

Participants were asked if they would use a centralized university repository that was managed by the UHM Library to deposit the digital materials that they created. As seen in Figure 4, the majority responded in a positive or neutral manner. Those indicating that they would not or probably not use a repository service were less than 14%.

Comments indicated that some participants would need to “sold” on the idea of a repository and how it would benefit them. Other comments referenced the need for security and a desire not to duplicate effort by posting on personal websites as well as in

a repository. Further comments indicated that if assistance was given in terms of setting up collections and in depositing work then interest would be greater.

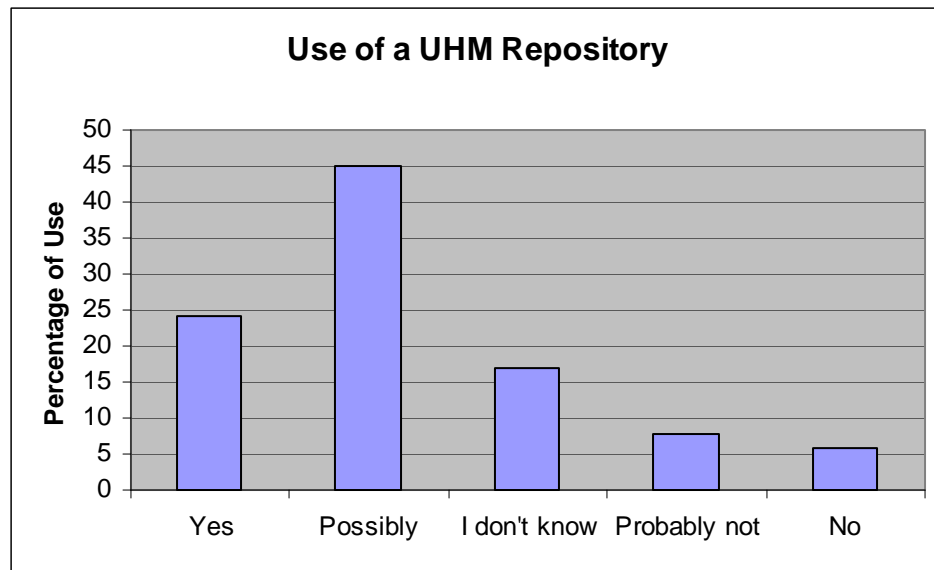


Figure 4. Use of a UHM repository.

A question was then addressed to those responding in the negative for the previous question. They were asked what it would take for them to change their mind about depositing their research or scholarly materials in a university repository. Table 5 shows the response to this question.

Some participants responded once again that security was a concern. Several others commented that a repository was not the best type of service for their particular research. The need for assistance in working with the repository was mentioned again.

Table 5. Factors That Would Encourage the Use of a Repository

I would be interested in depositing my research if I was ...	
Given more information about the benefits of a repository	24.03%
Given more information about how a repository could assist me with scholarly communication	17.98%
Given more information about copyright & plagiarism	16.97%
Provided training in the submission process	14.79%
Given assistance in copyright issues with my work	12.44%
Provided with assistance in submitting my materials	11.43%
Other	2.35%

Open Access

Though more than half of the participants have never published in an open access online journal or in an online subject or institutional repository, over 35% have had some experience in this area. Figure 5 sums up this information.

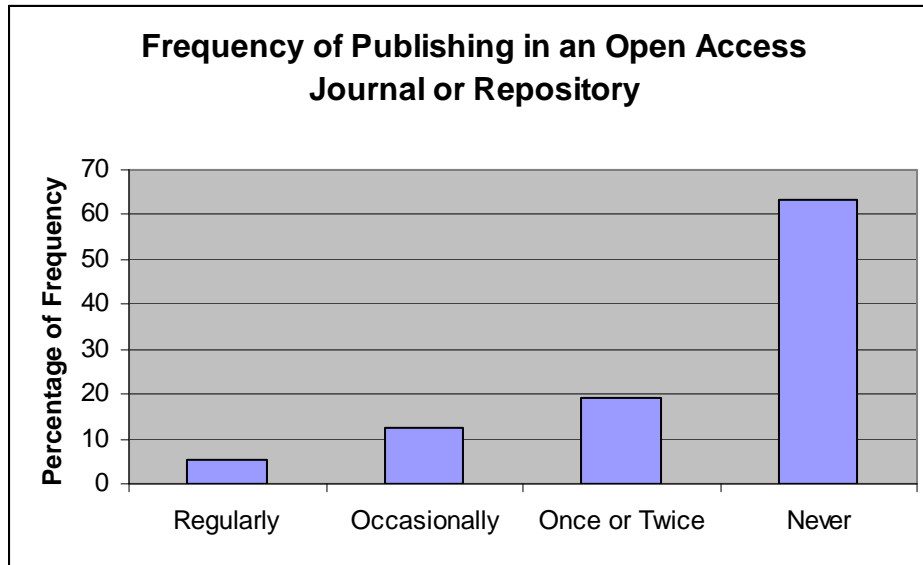


Figure 5. Frequency of participants publishing using open access.

In another question, information was presented about the National Institute of Health (NIH) Public Access Law and about institutional mandates. This United States law mandates that researchers who receive NIH funding for their work must deposit the resulting research in Pub Med Central, a free digital archive of biomedical and life sciences journal literature, within a certain time period. Further information on the survey stated that institutions are also mandating that their faculty research be deposited in their own institutional repositories. Participants were asked to give feedback on the idea of mandating the deposit of research. Figure 6 displays the results.

Many participants commented that though they would support the mandate for federally-funded research, they would not support a mandate if it applied to non-publicly funded research. It was very evident from the many comments on this question that if such a mandate were to be applied at UHM, it would need to be accompanied with a very clear policy statement and supported by the administration and faculty senate.

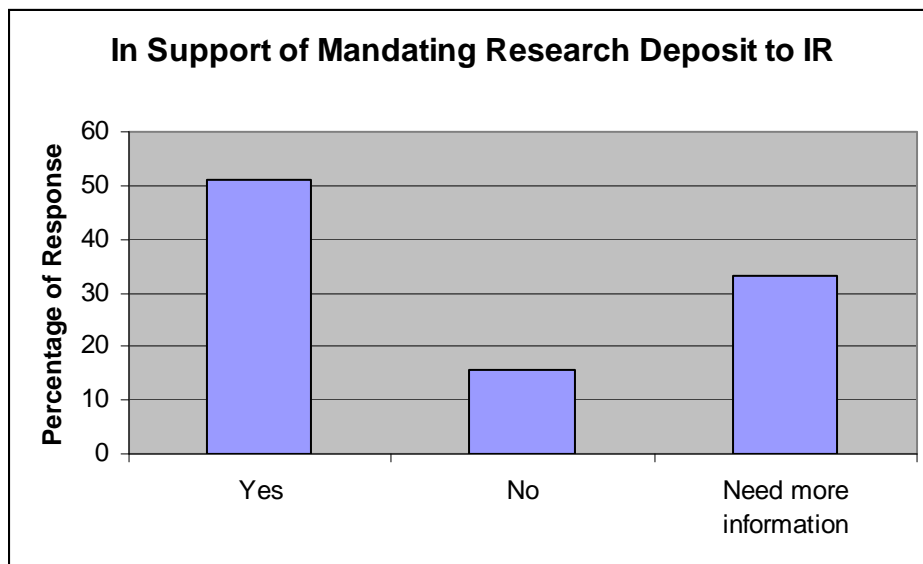


Figure 6. Participants supporting the mandate.

Concerns About Use of an Institutional Repository

Finally participants were asked to voice their concerns about depositing their digital materials in a centralized, open access institutional repository. Table 6 indicates the response to this question.

Table 6. Concerns About Depositing Work in an Open Access IR

Plagiarism and theft of my work	18.1 %
My digital materials are a work in progress and are not suitable for public access	15.85%
Confusion about current copyright laws	11.86%
That it is not considered professional publishing in my field	9.3 %
A possible loss of files	9.2 %
That digital materials submitted to an IR will not have citation value and will not count towards tenure	7.67%
That I don't have time to add to my work routine	7.26%
That a lack of review process will compromise the quality of digital materials submitted to an IR	7.16%
That the process will not be easy	6.54%
About the risk to the patentability of my ideas	4.7 %
Other	2.35%

Additional concerns listed in the general comment section of the survey addressed an array of issues. Several comments mentioned that publishers might restrict additional “publication” of work in an institutional repository. Others mentioned a worry about forwarding migrating work that is in a repository. As new technologies evolve, will the repository be able to migrate the current formats so they will be accessible in the future with new formats and program requirements? There were a few additional comments

expressing the worry that maybe the repository would have over-restrictive policies creating possible access problems.

One participant responded that rather than looking at the “concerns” about depositing digital material, that researchers should be looking at the reasons **for** depositing: foster collaboration, lead to more grants, develop synergistic relationships, better recognition for all the good work going unnoticed at the UH, encourage collegiality, sharing of undisclosed research and grey literature with students and other researchers. A number of respondents indicated that they really didn’t have particular concerns and that they were very supportive of the idea of a repository.

SUMMARY AND DISCUSSION

The purpose of this study was to conduct a needs assessment to investigate how an institutional repository can best meet the research needs of faculty and researchers at the University of Hawaii at Manoa. This knowledge will help to align the faculty needs with the services provided by the repository, thus encouraging the process of voluntary submission of items and the success of the repository. The following discussion will focus on various factors needing to be considered while developing a repository as indicated by the results of the study.

Results indicated the need to generally market and promote the repository service. Comments made by both graduate students and faculty made it obvious that a portion of the university community does not know about the repository and the services that it provides. Question 7 asked if participants would find it helpful to distribute their work in an institutional repository. Though almost 60% indicated overall that they would find it helpful, 35% responded that they were not sure and would need more information. A

well-organized marketing plan needs to be developed for the target audience with a series of promotional activities delivered in order to help ensure the enlightenment of the UHM community and the success of the repository.

Data from question number 13 can help to shape the focus of the marketing strategy. Almost 15% of respondents indicated that providing long-term preservation of digital materials was important. This was followed by the need for storing files to support teaching and learning and then by storing digital materials in a centralized location. Written comments to this question also addressed the intent to store files in order to use for tenure and promotion. These comments address features that the institutional repository currently offers, so these should be emphasized when promoting repository services.

Another question asked about the location of the researchers' stored files. More than 63% store their research on personal computers. Some of the UHM faculty and researchers have experienced the potential danger in this practice: the 2004 flood on the Manoa campus wiped out the original and irreplaceable data of a number of researchers on this campus. Emphasizing a central location that includes back-up and off-site storage should be a very motivating reason for researchers to make use of an institutional repository.

When asking people to tackle a new task, one that involves the use of technology, one must consider a person's comfort level in adapting to and using new technology tools. In analyzing the comfort of the UHM population, the results show that approximately 80% feel either very comfortable or comfortable with adopting new technologies. This figure closely reflects both faculty and graduate student perception.

However, it will be important to address the remaining 20%. Though the online repository system is fairly intuitive and easy-to-use, it is the initial perception of difficulty that must be addressed. In survey question 17, which addressed concerns about depositing digital material into a repository, there was a 6.5% response indicating a concern “that the process will not be easy.” Therefore a marketing approach will need to take this data into consideration, and an emphasis on the ease-of-use will need to be incorporated when promoting the repository. In addition easily-accessible and flexible training sessions will need to be offered to both the graduate and faculty populations to fit into busy schedules. In addition online tutorials for utilizing the repository program should be provided. Another possible venue for presentations might be through the Office of Faculty Development and Academic Support series.

The responses on question 15 addressed the accessibility of digital files give food for thought. Approximately 66% responded that they would allow no access. Though it is understood that many people were most likely responding in terms of their own personal files, one might wonder how much this response covers personal research as well. (The question on the survey should have been designed to differentiate this point.) However, since one of the motivating factors in the initial development of institutional repositories is the idea of Open Access, this response indicates that some time should be spent addressing this concept with the UHM academic community and how it applies to research and scholarly publication today. This is an area that is rapidly changing at the moment, with a potentially great impact on the way researchers function. It should, therefore, be an integral part in marketing repositories. A few participants indicated that they hadn’t thought about making their work available in an open access format. A

number of others indicated that they send files to individuals who write and request information. One comment summed up the benefits of using a repository, “I used to send my articles when anyone wrote asking for them, but now with ScholarSpace, I simply refer them there.”

When asked if they would use a centralized university repository managed by the UHM Library to deposit their research, almost a quarter of the respondents indicated in the affirmative. Approximately 45% were favorable to the idea, with 17% undecided and less than 14% responded negatively. This data indicates the need to address a large portion of the UHM academic community in order to educate and enlighten them on the existence of and benefits in utilizing ScholarSpace. Those respondents who had given a negative response were then queried to find out what would be needed to possibly change their mind. Almost 42% of these responded that they would need more information about the benefits of a repository and about how it would benefit them and assist them in scholarly communication needs for conducting research and teaching. Once again, this speaks to the need of the repository managers to conduct outreach and begin an educational campaign in support of the repository and in scholarly communication issues. Part of this campaign must address copyright issues as almost 17% of respondents indicated that they would need information about this issue as well as the issue of plagiarism. Others indicated that they would need specific training or assistance in certain areas: in depositing items to ScholarSpace, in clearing up copyright issues, and in providing training in using ScholarSpace.

One of the questions giving a great deal of insight into the issues on the minds of faculty and graduate students was the question asking them to address their concerns

about depositing their digital materials in a centralized location. The greatest concern for both groups was about plagiarism and the theft of their work if it resides in an open access environment. The next highest concern was that their work was often “in progress” and wasn’t necessarily suitable for public access. This concern was followed by the confusion over current copyright laws and how these laws would affect researchers publishing with Open Access. Several other concerns touched on the attitude of publishing in an open access publication as opposed to a more traditional (and more accepted) form of publication as in proprietary scholarly journals. Once again these are all very important issues to consider, and a thoughtful and inclusive strategy will need to be developed to address them as the repository is managed and promoted and as training is developed.

Conclusions

The world of scholarly communication is currently in a state of flux. The high cost of scholarly journals is far outpacing the budgets of institutions of higher education. One approach to address this situation is seen in the dramatic increase in the worldwide development of institutional repositories. However, it is a curious phenomenon that developers of these institutional repositories often struggle with populating the repositories with content.

In order to address this phenomenon, the developers of ScholarSpace, the nascent institutional repository at UHM, felt it important to conduct a needs assessment of the target users of the repository. The data collected from this assessment will help the repository developers best understand and meet the research and scholarly communication needs of faculty and researchers at the University of Hawaii at Manoa.

In analyzing the data collected from the needs assessment, the following recommendations need to be considered while further developing the repository and its services: 1) Develop a plan to generally market and promote the repository service; 2) Address how the repository provides long-term preservation of digital materials, how it supports teaching and learning, and how it can support the tenure and promotion process; 3) Emphasize that a repository provides a central location that includes back-up and off-site storage and make sure this is a clearly-defined step in the repository development; 4) Provide easily-accessible training sessions in both repository use and submission process, as well as links to clear, online tutorials for utilizing the repository program; 5) Develop an educational program that addresses Open Access, copyright issues, plagiarism, and the changes in scholarly communication.

By addressing these issues and by re-evaluating both the needs of the faculty and the quality of repository services as the repository continues to develop, ScholarSpace will more likely meet the needs of our academic community and therefore achieve a higher measure of success.

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